

Work Order ID 138486

138486

Page 1

Wednesday, October 28, 2015 12:57:07 PM

Item ID: D206-667-207BL Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue
 Start Date: 10/28/2015 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 10/28/2015 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: ML5 Date: OCT 28 2015 Tooling: _____ Date: _____
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____
 Run Start *NR1*
 Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D206-667-247	A (DEO)
IIN-D206-667	D

ML5 1601-05

100	Document Control	0.00	DAS 6 9-89					DAS 28 9-89	JAN00772235
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork		Photocopy bluefile and create labels as per PPP D206-667-207 chg 002							

110	BENDING MACHINE - CROSSTUBES	0.00							
110									
CNC Bend 2	Memo	0.02							
CNC Alpha 160 Bender	Bend tube as per Dwg D206-667-247 using CNC bender program D206-667-207								

BL 15/12/14

☆
PTD

D206-667-207BL/138486

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Item ID: D206-667-207BL

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N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

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Start Date: 10/28/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/28/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/

Work Center ID

Operation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

QC15- Crosstube Dimensional Check

0.00

120

QC

Memo

0.00

Quality Control

DAS

49

9-89

15/12/15

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Revision ID:

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

0.00

130

Crosstubes

Crosstubes

0.02

Memo

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-247. Drill all (3) top holes. Holes facing inboard. Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-247

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

2- Drill fwd rivet holes using drill Jig DT8787 fwd as per Dwg D206-667-247.
Note: FWD side has 3X top holes facing inboard.

3- C'sink holes as per dwg D206-667-247. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom hole to prevent accidental drilling. Drill holes and ream using drill Jig DT8583 & DT8584 as per Dwg D206-667-247. Drill only the top (2) holes. Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-247

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

5-Drill aft rivet holes using drill Jig DT8787 aft as per Dwg D206-667-247.

BC 15/12/15

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Item ID: D206-667-207BL

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Revision ID:

Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue

Stop ***NS2***Start Date: 10/28/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 10/28/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

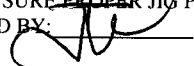
Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY:  *****

6- C'sink holes as per dwg D206-667-247. Allow rivet to sit below surface to compensate for paint.

7- Scribe tube to identify on the inner chamfer in the cuff D# and B#

8-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***Debur
& Inspect for surface damage. Repair damage within limits as per Dwg D206-667-247

15/12/16

140

0.00

140

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

IMMEDIATELY AFTER GRINDING

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.



15/12/16

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC7-Inspect Chemical Conversion Coat	0.00							
150									
QC	Memo	0.00							DAS 9-89
Quality Control									
160	QC5- Inspect part completeness to step on W/O	0.00							
160									
QC	Memo	0.00							DAS 49 9-89
Quality Control									
170	Outsource process - NDT per QSI038 4.1	0.00							
170									
Outsource2	Memo	2.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Liquid Penetrant Inspection as per QSI 038Or								
	Issue P/O: <u>30754</u>								
	LPI as per ASTM 1417								
	Level 2 Attach copy of NDT results to work order								

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Cust Item ID:

Required Date: 10/28/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

180

180

Packaging

Packaging

Packaging

Memo

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Ensure copy of NDT results attached to work order.

0.00

0.00

190

190

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Ensure results are as per Dwg D206-667-247

0.00

0.00

DEC 12 2015

DAS
9
9-89

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Item ID: D206-667-207BL

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

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Start Date: 10/28/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/28/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run

Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

0.00

200

SprayPaint

SprayPaint

Memo

0.01

Spray Painting

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube as per QSI 005 4.2

PRIME: 133242

Start Time: Finish Time:

PAINT: 132641

Start Time: Finish Time:

clear 133154

210

QC14- Inspect Spray Paint

0.00

210

QC

Quality Control

Memo

0.00

Wrap in plastic bag to protect from scratches

DAS
38
9-89

JAN 05 2016

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Accept

Setup Start *NS1*

Stop *NS2*

Start Date: 10/28/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 10/28/2015 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run	Start	*NR1*
	Stop	*NR2*

[illegible]

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Required Date: 10/28/2015 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	Pick Kit	0.00							
250						DAS 6	BAS 27		
Packaging	Memo	0.00				9-89	8-89		JAN 05 2016
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
260									
QC	Memo	0.00					DAS 28		JAN 07 2016
Quality Control							9-89		
270	Packaging	0.00							
270							DAS 28	BAS 27	
Packaging	Memo	0.00					9-89	8-89	JAN 07 2016
Packaging	Identify and pack for shipping as per PPP D206-667-207								
	Location: <u>035</u>								
	PPP Rev: _____								

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Item ID: D206-667-207BL

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N900040100Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue

Stop ***NS2***Start Date: 10/28/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 10/28/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

MCS JAN 08 2016

MCS JAN 07 2016

Picklist Print

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Work Order ID: 138486

138486

Parent Item: D206-667-207BL

***D206-667-207BL ***

Parent Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue

Start Date: 10/28/2015

Required Date: 10/28/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: RevA 11.01.13 New Issue EC verified by:DD
11.08.08 PER ECN 11-615 DD VERF:EC

IPP REV:B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D206-667-247TRN

Manufactured No

110

Each

1.0000

1

1

D206-667-247TRN

Crosstube Assembly, Mid Aft

1

BC

15/12/14

Location

Loc Qty

Loc Code

LG014

1

132352

1

D2873-043

Manufactured No

220

Each

72.0000

2

2

DAS

41

9-89

D2873-043

Nut Plate Assembly

2

15-12-21

Location

Loc Qty

Loc Code

LG050

72

135398

32

137626

40

D2873-045

Manufactured No

220

Each

62.0000

2

2

DAS

41

9-89

D2873-045

Nut Plate Assembly

2

15-12-21

Location

Loc Qty

Loc Code

LG050

62

134433

1

136187

51

137696

10

Picklist Print

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Page 2

Work Order ID: 138486

138486

Parent Item: D206-667-207BL

***D206-667-207BL ***

Parent Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue

Start Date: 10/28/2015

Required Date: 10/28/2015

Start Qty: 1.00

Required Qty: 1.00

MS20601-AD4W10

Purchased

No

220

Each

327.0000

14

14

MS20601-AD4W10

RIVET

DAS

41

9-89 15-12-22

LocationLoc QtyLoc Code

LG050

277

M128594

4

M128701

173

M132522

50

M133091

50

LG056

50

M132674

50

D2892-1

Manufactured

No

230

Each

10.0000

2

2

D2892-1

Support

DAS

41

9-89 15-12-22

LocationLoc QtyLoc Code

LG050

4

132704

4

LG052

6

136226

6

D3595-063-450

Manufactured

No

230

Each

52.0000

4

4

D3595-063-450

Rubber Cushion 0.63" wide x 4.50" Long

DAS

41

9-89 15-12-22

LocationLoc QtyLoc Code

FG

22

129907

10

131013

6

88422

6

LG052

30

136574

30

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Shop Packet Print

Page 2

Picklist Print

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Work Order ID: 138486

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Parent Item: D206-667-207BL

***D206-667-207BL ***

Parent Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue

Start Date: 10/28/2015

Required Date: 10/28/2015

Start Qty: 1.00

Required Qty: 1.00

MS21920-22

Purchased

No

230

Each

10.0000

4

4

DAS

41

9-89

15-12-22

MS21920-22

Clamp

**

4

Location

Loc Qty

Loc Code

LG050

10

M132854

10

AN5-10A

Purchased

No

250

Each

140.0000

10

10

DAS

6

9-89

DAS

27

9-89

AN5-10A

BOLT

**

Location

Loc Qty

Loc Code

GA

51

122800

51

ST299A

50

m133323

50

ST338

39

m133077

39

DAS
28
9-89

10

AN5-32A

Purchased

No

250

Each

219.0000

4

4

DAS

6

9-89

DAS

27

9-89

AN5-32A

Bolt

**

Location

Loc Qty

Loc Code

ST299A

180

m132857

30

m133323

150

ST336

32

m132536

32

ST337

7

m131139

7

DAS
28
9-89

4

JAN 07 2016

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Work Order ID: 138486

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Parent Item: D206-667-207BL

***D206-667-207BL ***

Parent Item Name: Aft Crosstube - Mid Height 206L / L1 / L3 / L4, Blue

Start Date: 10/28/2015

Required Date: 10/28/2015

Start Qty: 1.00

Required Qty: 1.00

AN5-34A

Purchased

No

250

Each

49.0000

4

4

AN5-34A

Bolt

DAS

6

9-89

DAS
28
9-89

Location

Loc Qty

Loc Code

ST299A

25

m132857

25

ST336

24

m128634

2

m133363

22

4

MS21042L5

Purchased

No

250

Each

485.0000

4

4

MS21042L5

Nut

DAS

6

9-89

DAS
28
9-89

Location

Loc Qty

Loc Code

GA

146

m127813

146

ST305

339

m127813

19

m131340

21

m132123

8

m132677

91

m133363

200

4

JAN 07 2016

Picklist Print

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***D206-667-207BL ***

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Start Date: 10/28/2015

Required Date: 10/28/2015

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0563J

Purchased

No

250

Each

1,227.000

18

18

NAS1149D0563.J

Washer

Location

Loc Qty

Loc Code

GA	53	
m125807	53	
ST260a	928	
m130799	63	
m132035	55	
m132256	10	
m133134	300	
m133363	500	
ST269	227	
m128257	156	
m132677	71	
ST271	19	
m131026	19	

DAS
28
9-89

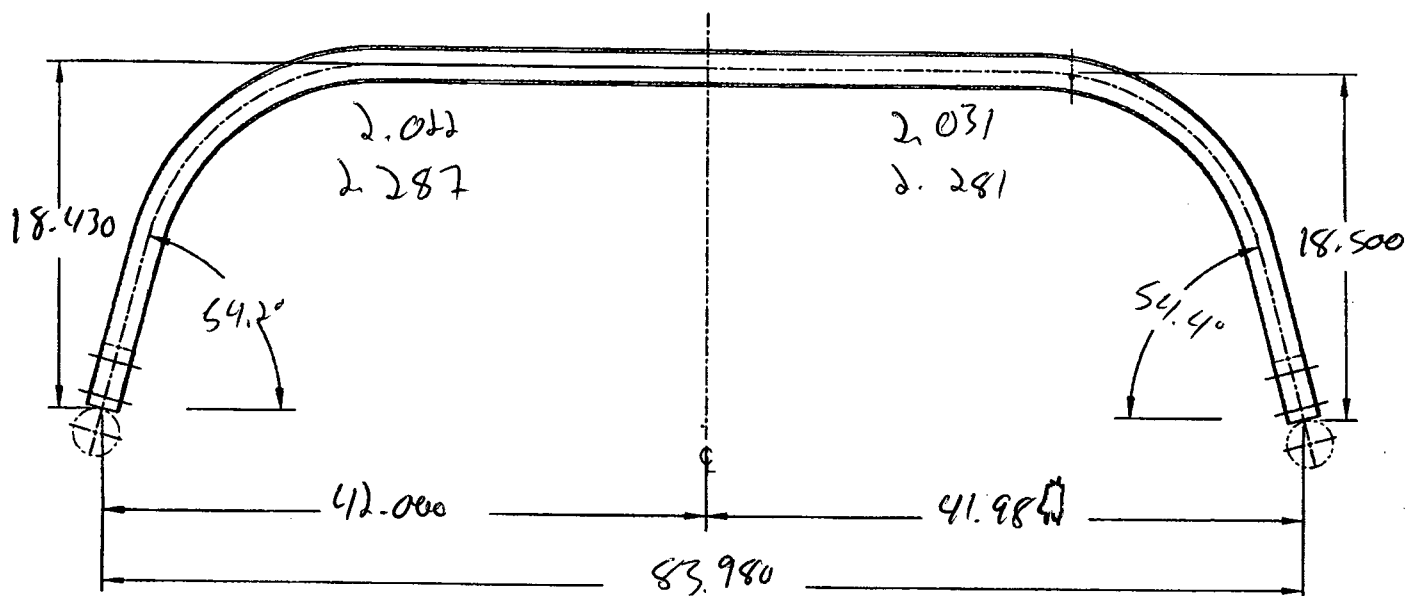
JAN 07 2016

DAS
6
9-89

DAS
17
9-89

DART AEROSPACE LTD		Work Order:	138486
Description: Crosstube Mid Aft (206L)		Part Number:	D206-667-207
Inspection Dwg: D206-667-247	Rev: A	Page 1 of 1	

Required Dimension	Min	Max
Height	18.34	18.60
1/2 Span	41.79	42.05
Angle	54°	56°
Total Span	83.59	84.09
Bending Passes	10	--
Crushing	--	6%



	Side A	Side B
Bending Passes	11	11
Crushing	6.1%	5.7%
Comments		
Lacombe		

QC15 Inspection	DAS
Date	15/12/15

Rev	Date	Change	Revised by	Approved
A	12.02.15	New Issue	KJ	
B	12.04.16	Added bending, crushing dimensions	KJ	

Item	Qty	Part Number	Description
	-247		
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-607 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHO
RET
ENC
UNCO
SUBJ
WITH
R

NO 138486 MJS
1570-28

DEO ATTACHED

BCO #11-615
11.07.28

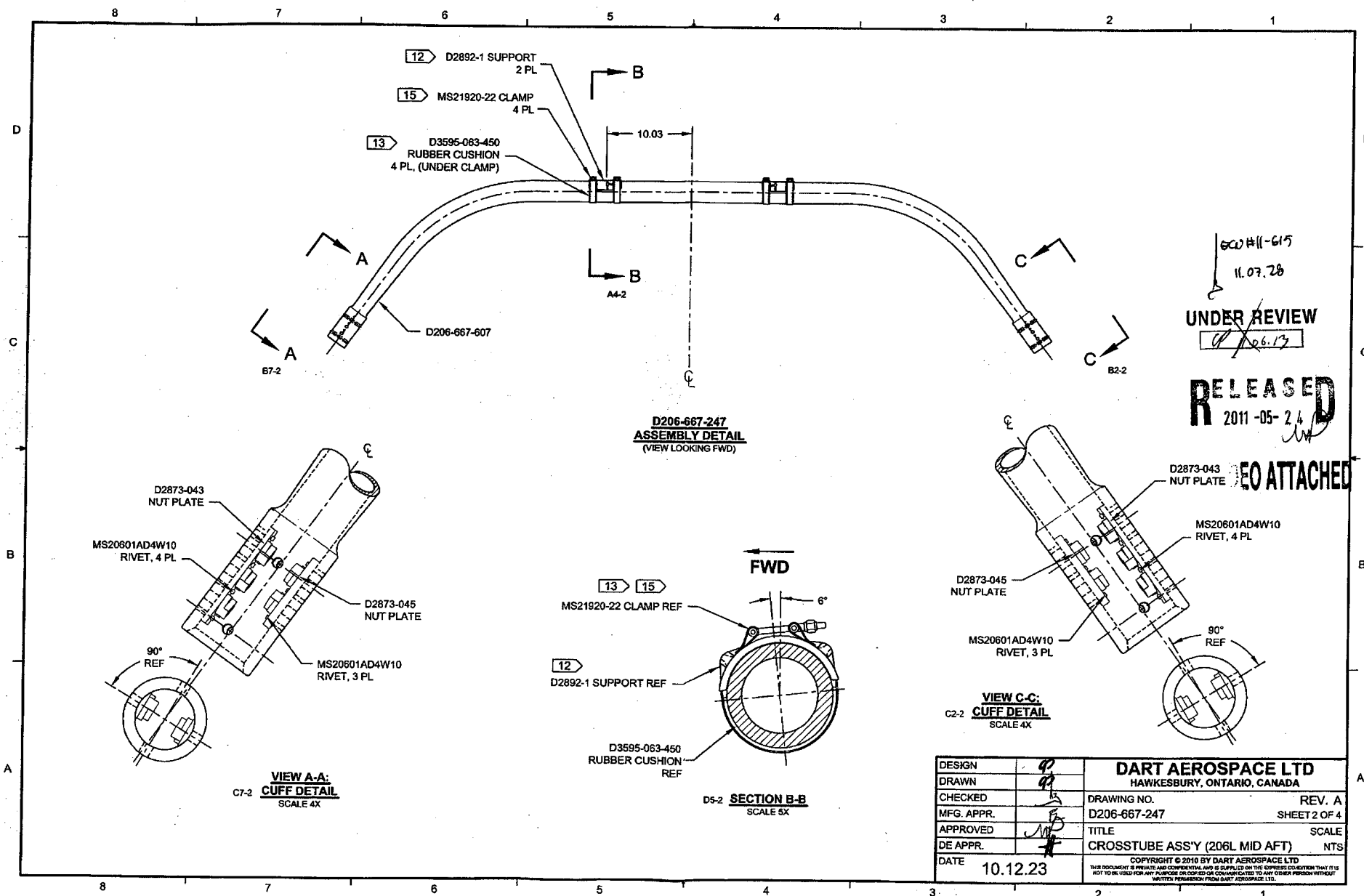
UNDER REVIEW

RELEASED
2011-05-24

A	NEW ISSUE	CP	10.12.23
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.12.23		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D206-667-247	REV. A SHEET 1 OF 4
TITLE CROSSTUBE ASSY (206L MID AFT)	SCALE NTS

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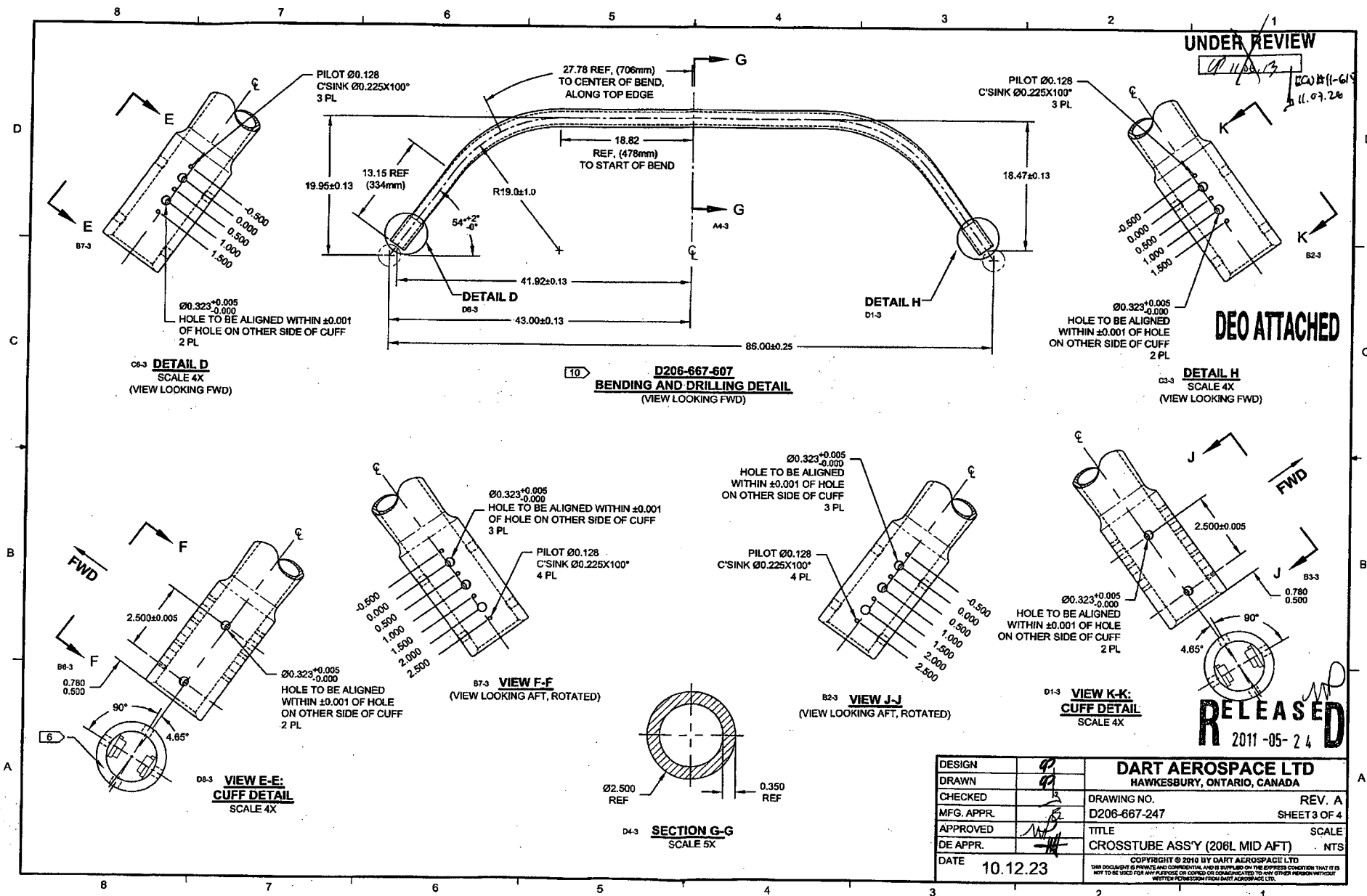


600 H-615
11.07.28

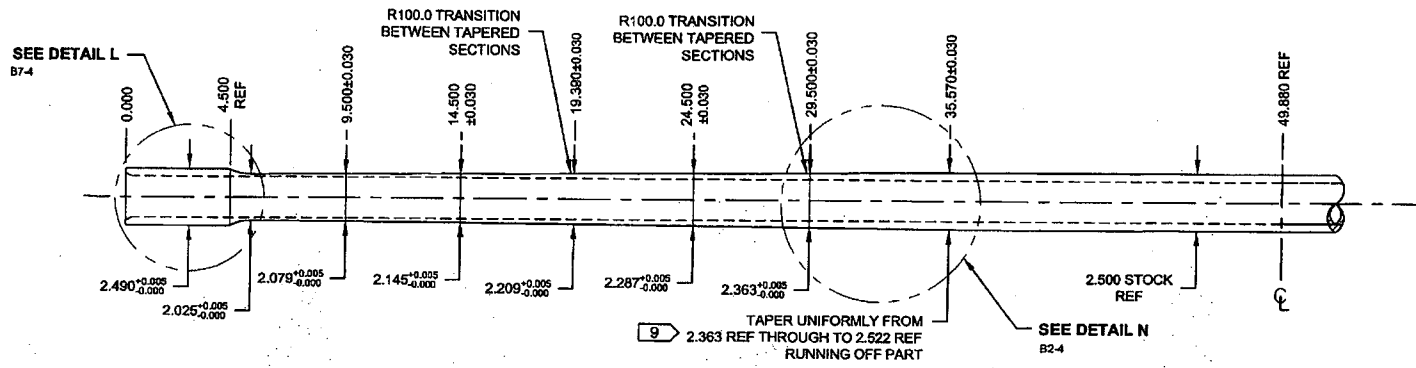
UNDER REVIEW

RELEASED
2011-05-24

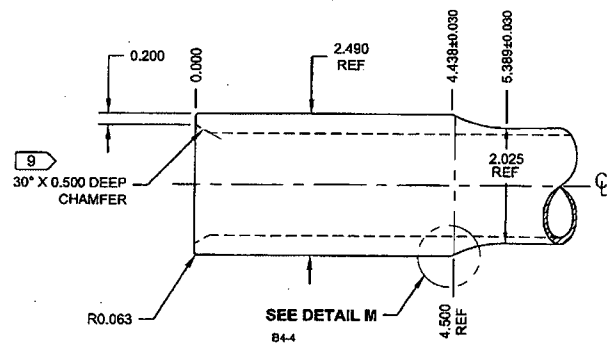
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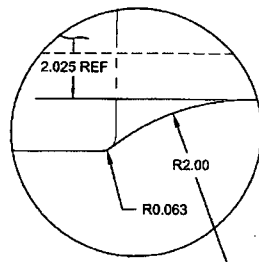
8 7 6 5 4 3 2 1



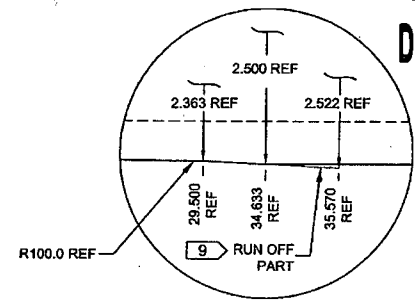
TURNING DETAIL



C7-4 **DETAIL L: CROSSTUBE CUFF**
SCALE 2.5X



B6-4 **DETAIL M: CUFF TRANSITION**
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**
NOT TO SCALE

BCW #11-615
11.07.28
UNDER REVIEW
11.06.13
DEO ATTACHED

RELEASED
2011-05-24

DESIGN	9	DART AEROSPACE LTD	
DRAWN	9	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9	DRAWING NO.	REV. A
MFG. APPR.	9	D206-667-247	SHEET 4 OF 4
APPROVED	9	TITLE	SCALE
DE APPR.	9	CROSSTUBE ASS'Y (206L MID AFT)	NTS
DATE	10.12.23	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

DRAWING NO. D206-667-247	TITLE CROSSTUBE ASS'Y (206L MID AFT)	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-247-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>JP</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>KD</i>	APPROVED <i>JMP</i>		DE APPR. <i>#</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -247	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2892-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
JMP

D206-667-247

Tangent lines

Center line

15" from CUFF

19" from Center line

2-Set-up

2.5" Rollers WITH 1.6" Spacers

Buggy A - 3.125"

All programs run with long end of tube on **LARGE TABLE**

3-BENDING:

Step 1: **Y 3290 W 1580**

Run program 206247 1-2-3-4 from 19" line down taper, buggy A on Cuff.
then CHECK

Step 2: **Y 3340 W 3440**

run program 206247 10 (check), 11 - 11a - b - c - d check , from 15" line

drill table setup: red towers #4, bottom support towers "loose"

14/03/12.. Bent tubes with programs, (1-4 CHECK, 10 CHECK, 11-11d
CHECK, 11e-11h CHECK

11i, 1J etc.. checking between each!)

1
2
3
4
5
6
7
8
9
10
11
11J

1
2
3
4
5
6
7
8
9
10
11
11d
11e
11f
11g
11h
11i
11j

Table 1 – Margin of Safety Calculation for Crosstubes with 8% Crushing

	ODs (in)	IDs (in)	d (in)	Is (in ⁴)	cs (in)	F (psi)	q	ODa (in)	da (in)	wa (in)	la (in ⁴)	ca (in)	Fa (psi)	MSa	ODb (in)	db (in)	wb (in)	lb (in ⁴)	cb (in)	Fb (psi)	MSb
D058-676-101	2.250	1.874	26.881	0.653	1.125	46.31	8%	2.158	12.637	0.142	0.401	0.993	31.29	0.48	2.209	19.240	0.168	0.491	1.016	39.81	0.86
D058-676-201	2.250	1.550	29.931	0.975	1.125	34.54	8%	2.045	13.077	0.248	0.498	0.941	24.71	0.40	2.140	19.503	0.295	0.644	0.984	29.80	0.86
D119-796-101	2.562	2.000	28.893	1.329	1.281	27.85	8%	2.333	8.888	0.167	0.583	1.073	16.36	0.70	2.453	18.039	0.227	0.862	1.128	23.61	0.85
D119-796-201	2.919	2.250	29.151	2.306	1.460	18.45	8.5%	2.657	11.244	0.204	1.026	1.216	13.33	0.38	2.798	20.390	0.274	1.506	1.280	17.33	0.94
D206-667-101	2.250	1.874	22.251	0.653	1.125	38.33	8%	2.074	5.147	0.100	0.265	0.954	18.53	1.07	2.154	11.642	0.140	0.394	0.991	29.28	0.76
D206-667-103	2.250	1.750	27.884	0.798	1.125	39.31	8%	2.098	12.623	0.174	0.427	0.965	28.53	0.38	2.167	19.191	0.209	0.540	0.997	35.43	0.90
D206-667-107	2.250	1.750	27.884	0.798	1.125	39.31	8%	2.047	8.804	0.149	0.350	0.942	23.70	0.66	2.118	15.550	0.184	0.459	0.974	33.00	0.84
D206-667-201	2.250	1.380	22.251	1.080	1.125	23.18	8%	1.972	8.116	0.296	0.486	0.907	15.15	0.53	2.113	14.057	0.367	0.688	0.972	19.86	0.86
D206-667-203	2.500	1.800	30.931	1.402	1.250	27.58	8%	2.209	12.473	0.205	0.568	1.016	22.31	0.24	2.345	19.219	0.273	0.839	1.079	24.72	0.90
D206-667-207	2.500	1.800	30.931	1.402	1.250	27.58	8%	2.127	8.804	0.164	0.426	0.978	20.21	0.36	2.250	15.550	0.225	0.645	1.035	24.95	0.90
D212-664-101	2.750	2.000	38.230	2.022	1.375	26.00	8%	2.397	10.768	0.199	0.727	1.103	16.34	0.59	2.497	17.663	0.249	0.975	1.149	20.82	0.80
D212-664-107	2.750	2.125	33.687	1.806	1.375	25.65	10%	2.360	5.731	0.118	0.440	1.062	13.83	0.85	2.462	12.624	0.169	0.674	1.108	20.75	0.81
D212-664-201	3.250	2.220	38.701	4.284	1.625	14.68	8%	2.683	8.703	0.232	1.175	1.234	9.14	0.61	2.850	16.377	0.315	1.774	1.311	12.10	0.82
D212-664-207	3.249	2.374	33.670	3.911	1.625	13.99	10%	2.680	4.701	0.153	0.819	1.206	6.92	1.02	2.830	10.894	0.228	1.332	1.274	10.42	0.75
D350-748-101	2.339	2.000	24.970	0.684	1.170	42.69	8%	2.202	3.487	0.101	0.323	1.013	10.94	2.90	2.274	9.202	0.137	0.460	1.046	20.92	0.49
D350-748-103	2.339	2.000	24.970	0.684	1.170	42.69	8%	2.202	3.487	0.101	0.323	1.013	10.94	2.90	2.274	9.202	0.137	0.460	1.046	20.92	0.49
D350-748-201	2.299	2.000	24.970	0.586	1.150	48.98	8%	2.223	5.658	0.112	0.361	1.023	16.03	2.05	2.261	11.373	0.131	0.434	1.040	27.25	0.56
D350-748-203	2.299	2.000	24.970	0.586	1.150	48.98	8%	2.223	5.658	0.112	0.361	1.023	16.03	2.05	2.261	11.373	0.131	0.434	1.040	27.25	0.56
D407-667-105	2.250	1.610	31.888	0.928	1.125	38.66	8%	1.971	12.922	0.181	0.357	0.907	32.83	0.18	2.057	19.135	0.224	0.476	0.946	38.03	0.98
D407-667-205	2.484	1.450	35.475	1.652	1.242	26.67	8%	1.935	12.473	0.243	0.408	0.890	27.21	-0.02	2.089	19.219	0.320	0.619	0.961	29.84	1.12
D412-664-105	2.750	2.000	38.490	2.022	1.375	26.17	8%	2.397	10.768	0.199	0.727	1.103	16.34	0.60	2.497	17.663	0.249	0.975	1.149	20.82	0.80
D412-596-203	3.115	2.400	45.231	2.993	1.558	23.54	8%	2.925	19.581	0.263	1.708	1.346	15.43	0.53	2.998	28.211	0.299	2.029	1.379	19.17	0.81
D412-664-203	3.281	2.250	39.446	4.430	1.641	14.61	8%	2.747	9.835	0.249	1.336	1.264	9.30	0.57	2.827	16.053	0.289	1.629	1.300	12.81	0.88
D412-664-205	3.256	2.250	32.444	4.259	1.628	12.40	10%	2.612	4.654	0.181	0.863	1.175	6.34	0.96	2.790	13.117	0.270	1.435	1.256	11.48	0.93
D412-664-209	3.138	2.250	34.446	3.502	1.569	15.43	10%	2.680	4.254	0.215	1.068	1.206	4.80	2.21	2.773	10.336	0.262	1.375	1.248	9.38	0.61
D412-664-403	3.080	2.400	39.230	2.789	1.540	21.66	8%	2.776	9.835	0.188	1.122	1.277	11.19	0.94	2.789	16.053	0.195	1.169	1.283	17.62	0.81

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Revision: A

Date: 14.12.05

DQA:

Date: 16/01/15



QA Closed

Date: 16/01/16

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only

Work Order: <u>B38486</u> Part No. <u>D206 667 207B2</u> NCR No. <u>16-5517</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☒ Machining ☐ Small Fab ☐ Thermoforming ☐ Finishing ☐ Large Fab ☐ Composite ☐ Water Jet ☐ Engineering ☐ Prod. Eng. Coord. ☐ Quality ☐ Rec/Store/Packaging ☐ Other ☐ Supplier ☐			
Date: <u>15/11/15</u>		Step #: <u>110</u>		QTY Effective: <u>①</u>		MRB (QSI042) Approval DAS 12 9-89 <u>15/12/15</u>	
Description Work Order Deviation <u>CRUSHING IS OVER tolerance</u>				Disposition <u>Acceptable. Under 8% per</u> <u>DIZ-1059</u>		Completed By <u>PK/12/15</u> Lead hand / Supervisor Approval Verification <u>TW 15-12-15</u> QC / QA Coordinator Approval DAS 9 9-89 <u>15-12-15</u>	
Root Cause Environment ☐ No Re-verification ☐ Design ☐ Operator ☐ Doc/Data ☐ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☒ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Temperature/Cure ☐ Power Loss/Surge ☐ Positioned Wrong ☐ Bending ☐ Set-up ☐ Folio/Program ☐ Outside Dimensions ☐ Centre Not Concentric ☐ BOM/Route ☐ Grain ☐ Over/Under tolerance ☐ Cracks ☐ Broken/Damage/Defect ☐ Weld ☐ Part Incorrect ☐ Crimp/Kink/Ripple/Wave ☐ Inspection Incomplete/Unqualified ☐ Wrong Stock Pulled ☐ Part Lost/Missing ☐ Cuffs ☐ Contamination ☐ Out of Sequence ☐ Part Moved ☐ ☒ Crushing ☐ Countersink ☐ Off-set ☐ Drawing ☐ Heat Treat ☐ Cut Too Short ☐ Misabeled ☐ Finish ☐ Wave/Twist in Tube ☐ Instructions Incomplete/Unclear ☐ Fit/Function ☐ Misread ☐ Marks/Chatter ☐ Drill Holes ☐ Misaligned/off center ☐ Turning Sequence ☐ OTHER: ☐					



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMC 385

WO #: MWO26773	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: 30754
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT INSPECTION (LIQUID PENETRANT) ON 13 CROSSTUBES & 2 MISC PARTS.

ITEM ID: D212-725-1-007 COLLECTIVE BELL CRANK (QTY 2)

1 - WORK ORDER ID#: 139687

ITEM ID: D206-667-207BL AFT CROSSTUBE - MID HEIGHT 206L / L1/L3/L4 BLUE

2 - WORK ORDER ID#: 138487

3 - WORK ORDER ID#: 138484

4 - WORK ORDER ID#: 138485

5 - WORK ORDER ID#: 138486

SPK 12-17

ITEM ID: D206-667-107BL FWD CROSSTUBE MID HEIGHT 206L / L1/L3/L4 BLUE

6 - WORK ORDER ID#: 138473

7 - WORK ORDER ID#: 138474

8 - WORK ORDER ID#: 138472

9 - WORK ORDER ID#: 138475

ITEM ID: D407-667-105 FWD CROSSTUBE HIGH 407

10 - WORK ORDER ID#: 134082

11 - WORK ORDER ID#: 139764

12 - WORK ORDER ID#: 135103

13 - WORK ORDER ID#: 134083

14 - WORK ORDER ID#: 139766

Action Taken:		Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-3) AS PER ASTM1417M-13 NO CRACK FOUND Pen: ZL-27A MWO5678 DEV: SKD-S2 MPO11715 CLEANER: SKC-S MPO13923		DEC 17 2015	DOT-APP 61 53-89
Description	Location P/N	Qty	Batch
		S/N Off	S/N On

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:		ACA/SCA Stamp	Date:
Name:	ANTONINO MARCHETTA	DOT-APP 61 53-89	DEC 17 2015



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO30754**

Purchase Order Date 12/17/2015

PO Print Date 12/17/2015

Page Number 4 of 6

Order From :

VC-SKY001

Ship To : DART AEROSPACE LTD

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

905-678-5636

Ship To Contact

Ship To Phone

Ship Via:

Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Total:

\$97.50

9 138473

D206-667-107BL
CROSSTUBE

12/18/2015

1.00

\$97.50

\$97.50

Yes

12/18/2015

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total:

\$97.50

10 138486

D206-667-207BL
CROSSTUBE

12/18/2015

1.00

\$97.50

\$97.50

Yes

12/18/2015

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total:

\$97.50

Note:

12/17/2015